Asymmetric Information and Adverse selection

ECOE 40565

Bill Evans

Fall 2007

1

Introduction

- Economics 306 – build models of individual, firm and market behavior
- Most models assume actors fully informed about the market specifics
  - Know prices, incomes, market demand, etc.
- However, many markets do not have this degree of information
- Look at the role of 'imperfect information'

2

- This is more than just 'uncertainty' – we've already dealt with that issue
- Problem of asymmetric information
  - Parties on the opposite side of a transaction have different amounts of information
- Health care ripe w/ problems of asymmetric information
  - Patients know their risks, insurance companies may not
  - Doctors understand the proper treatments, patients may not

3

Problem of individual insurance

- Consider situation where people can purchase individual health insurance policy
- Problem for insurance companies
  - They do not know who has the highest risk of expenditures
  - People themselves have an idea whether they are a high risk person
- Asymmetric information

4

- Can lead to poor performance in the private insurance market
- Demonstrate in simple numeric example the problem of 'adverse selection'
- Definition: those purchasing insurance are a non-representative portion of the population

5

This section

- Outline problem of asymmetric information and adverse selection
- Focus on
  - How selection can impact market outcomes
  - 'How much' adverse selection is in the market
  - Give some examples
  - How can get around
  - Why EPHI might help solve AI/AS

6

- Focus in this chapter will be on the consumer side – how their information alters insurance markets
- Are some other examples
  - How doctors' asymmetric information might alter procedure
  - Will save for another time
  - Keep focused on insurance

7

Market for Lemons

- Nice simple mathematical example of how asymmetric information (AI) can force markets to unravel
- Attributed to George Akeloff, Nobel Prize a few years ago
- Good starting point for this analysis, although it does not deal with insuance

8

Problem Setup

- Market for used cars
- Sellers know exact quality of the cars they sell
- Buyers can only identify the quality by purchasing the good
- Buyer beware: cannot get your $ back if you buy a bad car

9

- Two types of cars: high and low quality
- High quality cars are worth $20,000, low are worth $2000
- Suppose that people know that in the population of used cars that ½ are high quality
  - Already a strong (unrealistic) assumption
  - One that is not likely satisfied

10

- Buyers do not know the quality of the product until they purchase
- How much are they willing to pay?
- Expected value = (1/2)$20K + (1/2)$2K = $11K
- People are willing to pay $11K for an automobile
- Would $11K be the equilibrium price?

11

- Who is willing to sell an automobile at $11K
  - High quality owner has $20K auto
  - Low quality owner has $2K
- Only low quality owners enter the market
- Suppose you are a buyer, you pay $11K for an auto and you get a lemon, what would you do?

12

- Sell it for on the market for $11K
- Eventually what will happen?
  - Low quality cars will drive out high quality
  - Equilibrium price will fall to $2000
  - Only low quality cars will be sold

13

Some solutions?

- Deals can offer money back guarantees
  - Does not solve the asymmetric info problem, but treats the downside risk of asy. Info
- Buyers can take to a garage for an inspection
  - Can solve some of the asymmetric information problem

14

Insurance Example

- All people have $50k income income
- When health shock hits, all lose $20,000
- Two groups
  - Group one has probability of loss of 10%
  - Group two has probability of loss of 70%
  - Key assumption: people know their type
- $E(\text{Income})_1 = 0.9(50K) + 0.1(30K) = \$48K$
- $E(\text{Income})_2 = 0.3(50K) + 0.7(30K) = \$36K$

15

- Suppose $u=Y^{0.5}$
- Easy to show that
  - $E(U)_1 = .9(50K)^{0.5} + .1(30K)^{0.5} = 218.6$
  - $E(U)_2 = .3(50K)^{0.5} + .7(30K)^{0.5} = 188.3$
- What are these groups willing to pay for insurance?
- Insurance will leave them with the same income in both states of the world

16

- In the good state, have income Y, pay premium (Prem), $U=(Y\text{-}Prem)^{0.5}$
- In the bad state, have income Y, pay premium P, experience loss L, receive check from insurance for L
- $U_{w/insurance} = (Y\text{-}Prem)^{0.5}$

17

- Group 1: Certain income that leaves them as well off as if they had no insurance
  - $U = (Y\text{-}Prem)^{0.5} = 218.6$, so $Y\text{-}Prem = 218.6^2 = \$47,771$
- Group 2: same deal
  - $U = (Y\text{-}Prem)^{0.5} = 188.3$, so $Y\text{-}Prem = 188.3^2 = \$35,467$

18

- What are people willing to pay for insurance? Difference between expected income and income that gives same level
- Group 1
  - Y-prem = \$50,000 – Prem = \$47,771
  - Prem =\$2,229
- Group 2
  - Can show that max premium = \$14,533

19

- Note that group 1 has \$2000 in expected loss, but they are willing to pay \$2229, or an addition \$229 to shed risk
- Group 2 has \$14,000 in expected loss, they are willing to pay \$14,533 or an extra \$533
- Now lets look at the other side of the ledger

20

- Suppose there is an insurance company that will provide actuarially fair insurance.
- But initially they cannot determine where a client is type 1 or 2
- What is the expected loss from selling to a particular person?
- E(loss) = 0.5*0.1*20K + 0.5*0.7*20K = $8K

21

- The insurance company will offer insurance for $8000.
  - Note that group 1 is only willing to pay $2229 so they will decline
  - Note that group 2 is willing to pay $14,533 so they will accept
  - The only people who will accept are type II
- Will the firm offer insurance at $8000?

22

- The inability of the insurance company to determine a priori types 1 and 2 means that firm 1 will not sell a policy for $8000
- Asymmetric information has generated a situation where the high risks drive the low risk out of the insurance market
- What is the solution?

23

Rothschild-Stiglitz

- Formal example of AI/AS in insurance market
- Incredibly important theoretical contribution because it defined the equilibrium contribution
- Cited by Nobel committee for Stioglitz's prize (Rothschild was screwed)

24

- p = the probability of a bad event
- d = the loss associated with the event
- W=wealth in the absence of the event

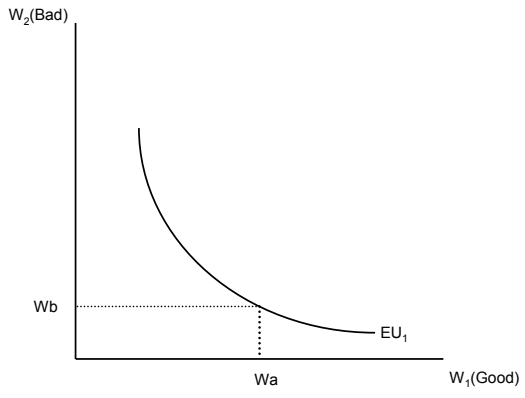
- EU_{wi} = expected utility without insurance
- EU_{wi} = (1-p)U(W) + pU(W-d)

25

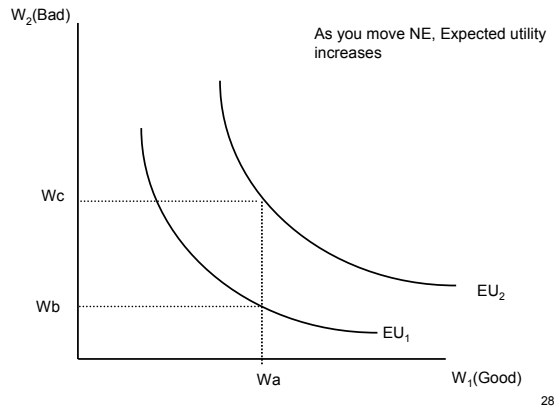
Graphically illustrate choices

- Two goods: Income in good and bad state
- Can transfer money from one state to the other, holding expected utility constant
- Therefore, can graph indifference curves for the bad and good state of the work
- EU_{wi} = (1-p)U(W) + pU(W-d)
  = (1-P)U(W_1) + PU(W_2)
  – Hold EU constant, vary W_1 and W_2

26



27



28

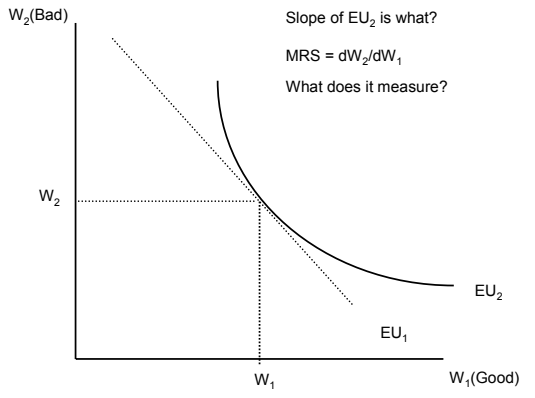
What does slope equal?

- $EU_w = (1-p)U(W_1) + pU(W_2)$
- $dEU_w = (1-p)U'(W_1)dW_1 + pU'(W_2)dW_2=0$
- $dW_2/dW_1 = -(1-p)U'(W_1)/[pU'(W_2)]$

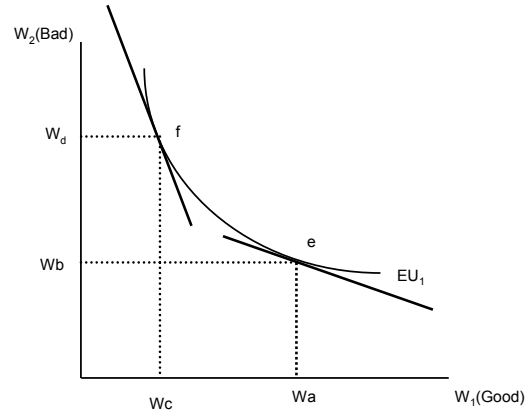
29

- $MRS = dW_2/dW_1$
- How much you have to transfer from the good to the bad state to keep expected utility constant

30



31



32

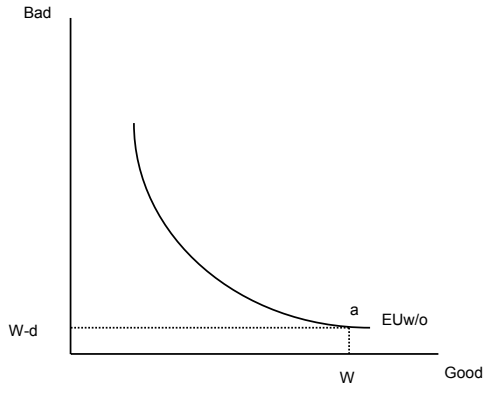
- At point F
  - lots of W_2 and low MU of income
  - Little amount of W_1, MU of W_1 is high
  - Need to transfer a lot to the bad state to keep utility constant
- At point E,
  - lots of W_1 and little W_2
  - the amount you would need to transfer to the bad state to hold utility constant is not much: MU of good is low, MU of bad is high

33

Initial endowment

- Original situation (without insurance)
  - Have W in income in the good state
  - W-d in income in the bad state
- Can never do worse than this point
- All movement will be from here

34



35

Add Insurance

- EU_w = expected utility with insurance
- α_1 pay for the insurance (premium)
- α_2 net return from the insurance (payment after loss minus premium)

- $EU_w = (1-p)U(W- \alpha_1) + pU(W-d+\alpha_2)$

36

Insurance Industry

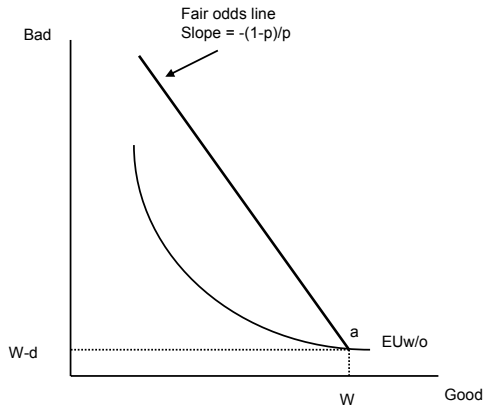
- With probability 1-p, the firm will receive α_1 and with probability p they will pay α_2
- $\pi = (1-p)\ \alpha_1 - p\ \alpha_2$
- With free entry $\pi=0$
- Therefore, $(1-p)/p = \alpha_2/\ \alpha_1$
- $(1-p)/p$ is the odds ratio
- $\alpha_2/\ \alpha_1$ = MRS of $ for coverage and $ for premium – what market says you have to trade

37

Fair odds line

- People are endowed with initial conditions
- They can move from the endowment point by purchasing insurance
- The amount they have to trade income in the good state for income in the bad state is at fair odds
- The slope of a line out of the endowment point is called the fair odds line
- When purchasing insurance, the choice must lie along that line

38



39

- We know that with fair insurance, people will fully insure
- Income in both states will be the same
- $W- \alpha_1 + W-d+\alpha_2$
- So $d= \alpha_1+ \alpha_2$
- Let W_1 be income in the good state
- Let W_2 be income in the bad state

40

- $dEU_w = (1-p)U'(W_1)dW_1 + pU'(W_2)dW_2=0$
- $dW_2/dW_1 = -(1-p)U'(W_1)/[pU'(W_2)]$
- But with fair insurance, $W_1=W_2$

41

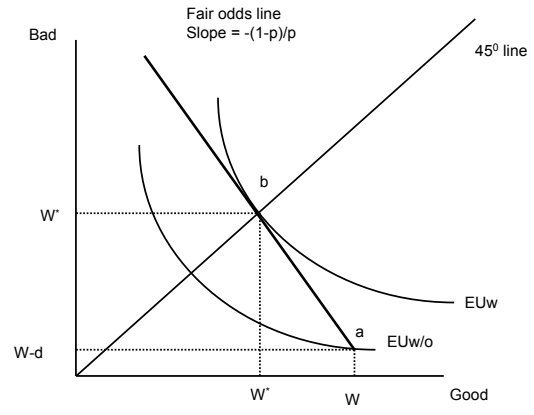
- $U'(W_1) = U'(W_2)$
- $dW_2/dW_1 = -(1-p)/p$
- Utility maximizing condition with fair insurance MRS equals 'fair odds line'

42

What do we know

- With fair insurance
  - Contract must lie along fair odds line (profits=0)
  - MRS = fair odds line (tangent to fair odds line)
  - Income in the two states will be equal
- Graphically illustrate

43



44

Consider two types of people

- High and low risk ($P_h > P_l$) –
- Only difference is the risk they face of the bad event
- Question: Given that there are 2 types of people in the market, will insurance be sold?

45

Define equilibrium

- Two conditions
  - No contract can make less than 0 in E(π)
  - No contract can make + E(π)
- Two possible equilibriums
  - Pooling equilibrium
    - Sell same policy to 2 groups
  - Separating equilibrium
    - Sell two policies

46

- $EU_h = (1-p_h)U(W-\alpha_1) + p_hU(W-d+\alpha_2)$
- $EU_l = (1-p_l)U(W-\alpha_1) + p_lU(W-d+\alpha_2)$

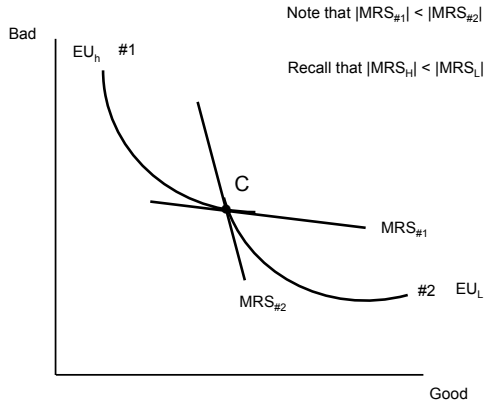
- $MRS_h = (1-p_h)U'(W-\alpha_1)/[p_hU'(W-d+\alpha_1)]$
- $MRS_l = (1-p_l)U'(W-\alpha_1)/[p_lU'(W-d+\alpha_1)]$

- With pooling equilibrium, income will be the same for both people

47

- Compare $|MRS_h|$ vs $|MRS_l|$
- Since income will be the same for both people, $U'(W-\alpha_1)$ and $U'(W-d+\alpha_1)$ cancel
- $|MRS_h|$ vs $|MRS_l|$
- $|(1-p_h)/p_h|$ vs. $|(1-p_l)/p_l|$
- Since $p_h > p_l$ and p_h is low then can show that $|MRS_h| < |MRS_L|$

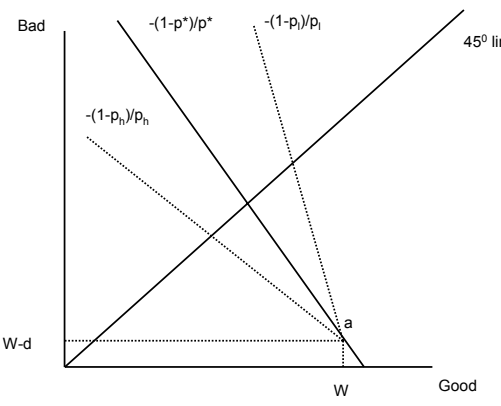
48



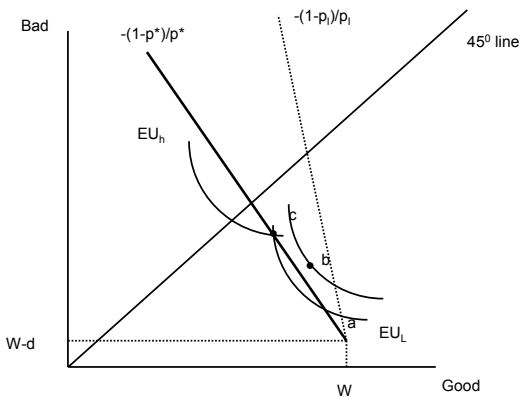
49

- Price paid in the pooling equilibrium will a function of the distribution of H and L risks
- Let λ be the fraction of high risk people
- Average risk in the population is
- $p^* = \lambda p_h + (1- \lambda)p_l$
- Actuarially fair policy will be based on average risk
- $\pi = (1-p^*)\,\alpha_1 - p^*\alpha_2 = 0$

50



51



52

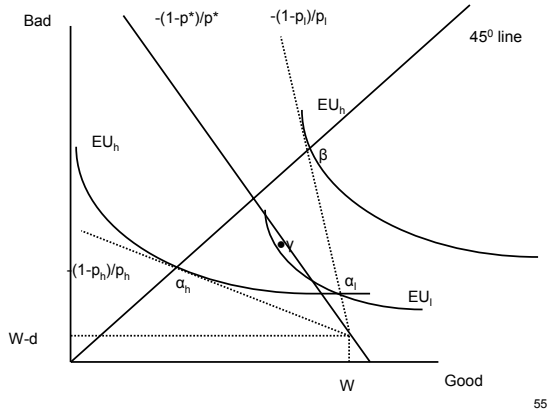
Pooling equilibrium

- Given PC assumption, all pooled contracts must lie along fair odds line for p^*
- Consider option (c)
- As we demonstrate prior, holding W_1 and W_2 constant, $|MRS_h| < |MRS_L|$
- Consider plan b. This plan would be preferred by low risk people (to the north east). So if offered, low risk would accept.

53

- High risk would not consider b
- Since b lies below the fair odds line for L, it would make profits
- The exit of the low risk from plan c would make it unprofitable so this will not be offered
- The existence of b contradicts the definition of an equilibrium, so a pooling equilibrium does not exist

54



55

Separating equilibrium

- Contract (α_h and β)
  - α_h provides full insurance in PC situation for H, while β does the same for L
  - But H would prefer β
  - Insurers would lose money pricing β for L and getting H customers
  - Not possible equilibrium

56

- Any contract north(west) of EU_h would be preferred to α_h
- Any contract between β and α_l will be picked by the high risk person, so the low risk option will not occur there.
- The optimal contract for L must be to southeast of α_l to prevent the high risk from picking
- But any point to the southeast of α_l will not be picked by the low risk person
- Only possible solution is (α_h, α_l)
- Note however that at α_l, which has zero profits, one can offer γ and make greater profits – sell to both customers – since it is below the fair odds line, will make a profit.
- No separating equilbrium

57

Some solutions

- Gather data about potential clients and price insurance accordingly
  - Correlates of health care use are factors such as age, race, sex, location, BMI, smoking status, etc.
  - 'statistical' discrimination, may be undone by legislation
  - Expensive way to provide insurance – collecting data about health is costly

58

- Pre-existing conditions
  - Insurers would not cover conditions for a period of time that were known to exist prior to coverage
  - E.g., if have diabetes, would not cover expenses related to diabetes
  - Reduces turnover in insurance.
  - May create job lock (will do later)
  - Has been eliminated by Federal legislation

59

- Group insurance
  - Gather people (by area, employer, union)
  - price policy by pool risk
  - Require purchase (otherwise, the low risks opts out)
  - Next section of class is about the largest group insurance program – employer sponsored insurance

60

Insurance Design

- Construct policies that appeal to high and low risk customers
- Their choice of insurance reveals who they are
- Example: suppose there are two policies
  - High price but low deduc. and copays
  - Low price, high deduc. but catastrophic coverage
  - H/L risk people from R/S. Who picks what?

61

Is adverse selection a problem?

- What is evidence of adverse selection?
- Some studies compare health care use for those with and without insurance
  - Demand elasticities are low
  - Large differences must be due to adverse selection
  - Problem: adverse selection looks a lot like moral hazard. How do you know the difference

62

Adverse selection in credit cards (Ausubel)

- Credit card companies aggressively court customers
- Offer different incentives
  - Miles
  - Cash back
  - Low introductory rates
- Do experiments to see what dimension people respond

63

- Examples:
  - Send 100K people an introductory rate of 7.9% for 6 months and 100K 7.9% for 12 months
  - Send 500K people 7.9%/12 months versus 5.9%/12 months
- Consider who responds to these solicitations
- Some of the deals are ‘good’ some are ‘not as good’

64

- Suppose there are two types of people
  - Great credit risks
  - Bad credit risks – people who will soon need access to cash
- Suppose you are a good credit risk and offered an OK package but not a great one – what do you do?
- Suppose you are a bad credit risk and offered an OK package, what will you do?

65

Predictions of adverse selection

- Current characteristics
- Future characteristics of people

66

Table 1

		Characteristics of people at time of offer				
Offer	# of Offers	Credit Score	# CCs	Limit on CC	CC Balan.	Mortgage
4.9%/6 mths	99.9K	643	3.77	$7698	$2515	$32.4K
6.9%/6 mths	99.9K	643	3.77	$7704	$2506	$32.5K
7.9%/6 mths	99.9K	643	3.78	$7693	$2500	$32.3K

67

Table 2

		Characteristics of people at time of offer who accepted offer				
Offer	% take offer	Inc.	Had gold card	Credit Limit/CCs	CC Bal.	
4.9%/6 mths	1.10%	$43.0K	84.0%	$6446	$5240	
6.9%/6 mths	0.90%	$41.2K	80.6%	$5972	$4806	
7.9%/6 mths	0.65%	$39.7K	76.7%	$5827	$5152	

68

Table 3

		Characteristics of people 27 months after they accept offer			
Offer	% take offer	Deliq. rate	Charge off rate	Charge off Balan.	Bankruptcy Rate
4.9%/6 mths	1.10%	5.97%	4.1%	$217	2.8%
6.9%/6 mths	0.90%	10.9%	6.9%	$355	3.2%
7.9%/6 mths	0.65%	10.1%	7.1%	$377	4.35

69

Example: Harvard University

- Offered insurance through Group Insurance Commission (GIC)
- Initially offered two types of plans
  - Costly plan with generous benefits (Blue Cross/Shield)
  - HMO plan, cheaper, lots of cost sharing
- The generous plan costs a few hundred dollars more per person than the HMO
- Enrollment in the plans were stable over time

70

- Mid 1990s, Harvard faced a budget deficit (10K employees with health insurance)
- In 1994, Harvard adopted 2 cost saving strategies
  - Would now no longer pay the premium difference between generous plan and the HMO – employees mst make up the difference
  - Aggressively negotiated down benefits and premiums. Premiums for the HMO fell substantially
  - Out of pocket expenses for generous plan increased

71

- Who do you anticipate left the generous plan?
- What happened to the characteristics of the people left in the generous plan?
- What do you think happened to premiums in the generous plan?

72

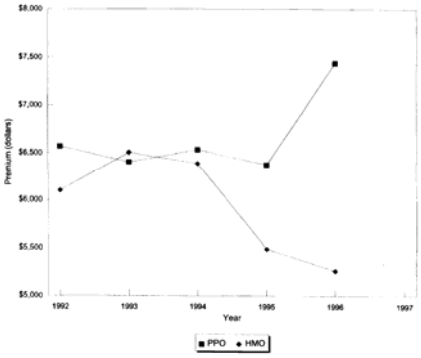
TABLE I
CHANGES IN EMPLOYEE PAYMENTS RESULTING FROM PRICING REFORM, 1995

Plan		Total premium	Employee payment: Old policy	Employee payment: New policy	Employee payment: Change	Share of enrollment, 1994
Individual						
PPO	HealthFlex Blue	$2773	$ 555	$1152	$597	16%
IPA	BayState	2127	489	576	87	5
	Pilgrim	2123	382	564	182	2
	Tufts	2119	381	564	183	8
G/S	HCHP	1945	253	384	131	25
	HUGHP	1957	235	396	161	44
HMO average		$1980	$ 277	$ 421	$144	84%
Family						
PPO	HealthFlex Blue	$6238	$1248	$2208	$960	22%
IPA	BayState	5772	1154	1572	418	9
	Pilgrim	5734	1032	1488	456	3
	Tufts	5721	1030	1488	458	10
G/S	HCHP	5252	683	1056	373	28
	HUGHP	5264	632	1068	436	29
HMO average		$5395	$ 776	$1191	$415	78%

G/S is a group/staff model HMO. HCHP is Harvard Community Health Plan. HUGHP is Harvard University Group Health Program, the HMO run by the University. In 1994 there were 3627 individual policies and 3387 family policies among full-time employees.
Out-of-pocket premiums are for an individual with salary between $45,000 and $70,000.

73

Figure 3: Real Family Premiums at Harvard



Note: Premiums are in 1996 dollars

74

Sharp rise is OOP
For PPO

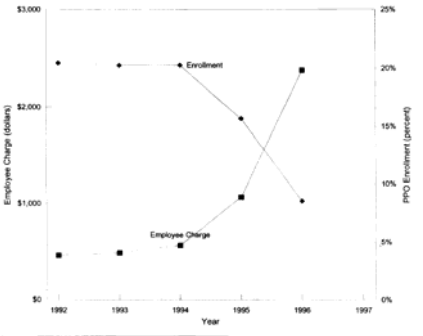
TABLE II
TRENDS IN REAL PREMIUMS AND ENROLLMENTS

Measure	Year: 1992	1993	1994	1995	1996
Individual					
Out-of-pocket cost of PPO	$ 290	$ 279	$ 361	—	—
1995 treatment group	290	279	361	$ 731	$1414
1996 treatment group	290	279	361	346	1414
Share of enrollees in PPO*	20%	20%	20%	—	—
1995 treatment group	—	—	18	14%	9%
1996 treatment group	—	—	13	12	5
Real premium					
PPO	$2854	$2794	$2828	$2773	$3228
HMOs	2066	2239	2240	1980	1910

Big increase in PPO premiums
And drop in enrollment

75

Figure 4: Real Employee Charge for the PPO and Enrollment in the PPO at Harvard



Note: Employee charge is in 1996 dollars and is for a family policy.

76

TABLE IV
CHARACTERISTICS OF PLAN ENROLLMENT CHANGES

First year enrollment	1994–1995 sample				1995–1996 sample			
	HMO		PPO		HMO		PPO	
Second year enrollment	HMO	PPO	HMO	PPO	HMO	PPO	HMO	PPO
Share of enrollees	99%	1%	15%	85%	100%	0%	39%	61%
Average age	41**	46**	46**	50**	41	***	46**	51**
Percent <40	50%	26%	31%	21%	50%	***	30%	15%
Percent 40–60	44	68	56	61	45	***	60	66
Percent >60	6	6	13	18	5	***	10	19
Index of spending	0.96	1.09	1.09	1.16	0.97	***	1.09	1.20
Average spending	—	—	—	—	—	—	$1893	$2648

Individual and family plans are grouped together. Average spending in the last row is adjusted for individual/family policies.
**Difference between age of people switching and remaining in plan is statistically significant at the 5 percent level.
***Too few people for reliable estimates.

77

Insurance 'death spiral'

- Adverse selection in health plan raises rates
- Lower risk patients exit due to increased costs
- Which increases costs
- Lather, rinse, repeat

78

Small Group Reform

- People without EPHI or small firms must purchase insurance in the 'Small Group' Market
- Small groups tend to have
  - Higher prices
  - Higher administrative fees
  - Prices that are volatile

79

- Prices are a function of the demographics
- Concern: prices for some groups too high
- Lower prices for some by "community rating"
- Nearly all states have adopted some version of small group reform in 1990s

80

What happened?

- Increased the price for low risk customers
  - Healthy 30 year old pays $180/month in PA
  - $420/month in NJ with community ratings
- Low risks promptly left the market
- Which raised prices
- Policy did everything wrong

81

Lesson

- Idea was correct:
  - Use low risk to subsidize the high risk
- But you cannot allow the low risk to exit the market

82

Table 1
Timing and nature of state reforms: 1991–1996

State	Full reform	Partial reform	Bare bones plan laws	State	Full reform	Partial reform	Bare bones plan laws
AK	1994–1996			MT	1994–1996		1992–1996
AL				NC	1992–1996		1993–1996
AR		1992–1996	1993–1996	ND	1995–1996	1994–1992	1992–1996
AZ		1994–1996	1992–1996	NE	1995–1996	1992–1994	1992–1996
CA	1994–1996			NH	1996	1994–1995	
CO	1996	1995	1992–1996	NJ	1995–1996		1992–1996
CT	1992–1996		1992–1996	NM	1996	1992–1995	1992–1996
DC				NV			1992–1996
DE	1994–1996	1992–1993	1994–1996	NY	1994–1996		
FL	1994–1996	1992–1993	1994–1996	OH	1993–1996		
GA		1992–1996	1994–1996	OK	1995–1996	1993–1994	1991–1996
IA	1993–1996	1992	1992–1996	OR		1992–1996	1992–1996
ID	1994–1996		1996	PA			
IL		1995–1996	1992–1994	RI	1993–1996		1991–1996
IN		1993–1996		SC	1996	1992–1995	
KS	1993–1996	1992	1993–1996	SD	1996	1992–1995	
KY	1996		1991–1996	TN	1994–1996		1994–1996
LA	1995–1996	1992–1994		TX	1995–1996		
MA	1992–1996		1992–1996	UT		1996	
MD	1995–1996		1992–1996	VA	1994–1996		1991–1996
ME	1994–1996	1991–1993		VT	1993–1996		
MI				WA	1994–1996		1993–1996
MN	1994–1996		1994–1996	WI		1993–1996	1993–1996
MO	1995–1996	1994	1992–1996	WV		1992–1996	1992–1996
MS		1996	1993–1996	WY	1993–1996		1993–1996

Source: Simon (2000).

83

Difference in Difference

	Before Change	After Change	Difference
Group 1 (Treat)	Y_{t1}	Y_{t2}	$\Delta Y_t = Y_{t2}-Y_{t1}$
Group 2 (Control)	Y_{c1}	Y_{c2}	$\Delta Y_c = Y_{c2}-Y_{c1}$
Difference			$\Delta\Delta Y$ $\Delta Y_t - \Delta Y_c$

84

Difference in Difference

	Before Change	After Change	Difference
Small emp reform	Y_{t1}	Y_{t2}	$\Delta Y_t = Y_{t2}-Y_{t1}$
Small emp No reform	Y_{c1}	Y_{c2}	$\Delta Y_c = Y_{c2}-Y_{c1}$
Difference			$\Delta\Delta Y$ $\Delta Y_t - \Delta Y_c$

85

Effect of full reform on Employer-provided ins. rates, CPS

		Before	After	Δ
Reform	Small	39.36	37.39	-1.97
No ref.	Small	47.18	47.04	-0.14
			ΔΔ	-1.83
Reform	Large	75.79	73.71	-2.08
No ref.	Large	79.61	77.36	-2.25
			ΔΔ	0.17
			ΔΔΔ	-2.00

86

Table 3
Probit results, individual level (dependent variable=1 if worker received health insurance from employer)

Sample	Observations	Sample mean	Small*Full*Post		Small*Partial*Post		Small*BBP*Post	
			Probit coefficient	Marginal effect	Probit coefficient	Marginal effect	Probit coefficient	Marginal effect
Whole sample	222,032	0.64	**−0.0566**	−0.0185	−0.0057	−0.0019	0.0225	0.0074
			[0.0263]	[0.0086]	[0.0285]	[0.0094]	[0.0251]	[0.0082]
Never married males <35 years	23,256	0.51	**−0.2305**	−0.0635	−0.0054	−0.0016	−0.0179	−0.0050
			[0.0765]	[0.0201]	[0.0875]	[0.0252]	[0.0745]	[0.0207]
Married women <41 years with kids	20,837	0.53	0.1008	0.0308	−0.0666	−0.0194	−0.0570	−0.0171
			[0.0930]	[0.0291]	[0.0983]	[0.0281]	[0.0875]	[0.0259]

87

Premiums increased by almost $8

Table 4
OLS results, establishment level: the impact of full reform

	N	Mean	Small*Full*Post
Premiums	26,651	181.1	**7.8 (4.2)**
Employee contribution	28,052	32	**5.1 (2.4)**
Decision to offer	50,485	0.66	−0.01 (0.01)
Coverage rate	47,598	42.9	**−2.12 (1.29)**

Standard errors in parentheses. Bold font indicates significance at least at the p=0.10 level. See footnote 16 for a full explanation of control variables included.

88